STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Illinois Bell Telephone Company **Filing to Increase Unbundled Loop and Nonrecurring Rates**	**ICC Docket No. 02-0864**

Rebuttal Testimony

of

LEE L. SELWYN

on behalf of

AT&T Communications of Illinois, Inc.

AT&T Exhibit 1.1

February 20, 2004

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Attachments

INTRODUCTION

Qualifications

Q. Please state your name, position and business address.

A. My name is Lee L. Selwyn. I am President of Economics and Technology, Inc. ("ETI"), Two Center Plaza, Boston, Massachusetts 02108.

Q. Are you the same Lee L. Selwyn that submitted direct testimony in this proceeding?

A. Yes, I am.

Purpose of testimony

Q. What is the purpose of your testimony at this time?

A. The purpose of my testimony is to address issues raised in the rebuttal testimony filed by a number of SBC Illinois witnesses. In particular, I rebut Dr. Debra J. Aron with regard to her assertion that it is relevant to examine SBC Illinois' actual embedded costs when evaluating and setting forward-looking rates for unbundled network elements ("UNEs"). I rebut the testimony of Mr. John Sneed with regard to his"high level" comparisons of SBC Illinois' actual costs to the "actual costs" of a number of other companies that provide communica-

tions services. Finally, I offer brief rebuttal to Mr. William Avera regarding the appropriate forward-looking cost of capital that should be used in setting SBC Illinois' UNE rates.

REBUTTAL TO DR. DEBRA J. ARON

Dr. Aron's "validity check" simplistically prefers whichever "forward-looking" costs are closer to SBC Illinois' historic embedded costs.

Q. Has Dr. Aron strayed from her position set forth in her direct testimony that what she characterizes as SBC Illinois' "actual cost" are relevant in setting UNE rates based upon forward-looking costs?

A. No, she has not. Although she provides very little additional support for her position in her rebuttal testimony, Dr. Aron continues to present what can only be considered a "fuzzy" perspective on the appropriate method for determining rates for unbundled network elements ("UNEs"). Dr. Aron seemingly agrees with me and other witnesses in this proceeding that prices for unbundled network elements "must be based on forward-looking costs."[1] Those words aside, she continues to maintain that any forward-looking costs must be benchmarked against "actual, incurred costs" as a "validity check" in order to "help guard against unreasonable results."[2]

Dr. Aron's rationale for using "actual costs" as a validity check is explained in her rebuttal testimony:

1. Rebuttal Testimony of Dr. Debra J. Aron on behalf of SBC Illinois, SBC Illinois Exhibit 2.1, January 20, 2004 ("*Aron (SBC) Ex. 2.1*"), at 2 and 7.

2. *Id*., at 5.

> The real question before the Commission in this proceeding is whether specific cost estimates put forth by the parties, which are developed from computer models of a hypothetical firm, are reasonable renderings of true forward-looking costs of an efficient carrier using currently available technology or whether these estimates are instead fantasy costs that merely reflect the biases and prejudices of the modelers.
>
> If forward-looking costs were known with 100 percent accuracy, one could use these known costs as the basis for determining UNE prices. However, the true forward-looking costs that are at issue in this proceeding are unknown. My analysis of actual, verifiable costs serves as a reality check to test the putatively forward-looking costs.[3]

Because forward-looking costs are unknown, any comparison to actual costs that do not comport with a forward-looking efficient network teaches the analyst nothing. Indeed, because "actual" forward-looking costs are not known (as Dr. Aron admits), there is no basis for ruling out one calculation of forward-looking costs in favor of another simply because of the relationship to whatever the embedded cost of the inefficient network happens to be.

Q. Why is that?

A. Neither this Commission nor any other state commission of which I am aware has adopted any policy whereby the forward-looking costs of a network element are required to maintain a particular relationship with the embedded cost of providing the element (i.e., some percentage above or below) – *nor should they*. It is particularly noteworthy that Dr. Aron herself makes no attempt to define a "range of reasonableness" for forward-looking costs

3. *Id*., at 7-8.

based upon the relationship to embedded costs. Instead, she simply advances the patently absurd notion that whichever version of forward-looking costs is closest to SBC's version of embedded ("actual") costs must be the most accurate. Thus, because SBC's proposed UNE rates are closer to SBC's embedded cost than the rates being proposed by AT&T, Dr. Aron concludes that SBC's numbers offer a better representation of "forward-looking" costs. Using Dr. Aron's criterion, there would be no need to develop forward-looking costs at all – all one need do is set "forward looking costs" equal to "actual" costs. Since nothing can be "closer" than "equal," these contrived "forward-looking costs" would always be the "best."

Similarly, SBC itself has not established a "range" of acceptable forward-looking costs relative to embedded costs. When asked in discovery in the current Michigan UNE case whether SBC requires forward-looking UNE rates to fall within some specified range (on a percentage basis) of the associated embedded cost, SBC Michigan's five respondents answered, quite simply, "No."[4]

SBC itself has questioned the "arbitrary allocations" employed by ARMIS and the relevance of this data for ratemaking purposes.

Q. Is Dr. Aron's position regarding the use of ARMIS data for ratemaking purposes consistent with SBC's position on this issue?

4. *In the matter, on the Commission's own motion, to review the costs of telecommunications services provided by SBC Michigan*, MPSC Case No. U-13531, *SBC Michigan response to ATTSBC 1008 (LS-8)*, October 16, 2003.

A. No. In her rebuttal testimony, Dr. Aron goes to great lengths to describe the fact that ARMIS data is suitable for use in her analysis, because the category-specific accounts appearing in ARMIS repots align with the cost categories associated with providing UNE-L and UNE-P.[5] She also defends the cost allocation rules employed in ARMIS.[6] Yet Dr. Aron's opinion is a complete reversal of SBC's own position on the matter. While *relying* upon costs reported in ARMIS as the basis for its present claims, SBC (together with its sister RBOCs) has contended, in a pleading regarding special access services filed about six weeks ago with the D.C. Circuit Court of Appeals, that "ARMIS data contain arbitrary allocations that are 'economically irrational.'"[7] According to SBC:

> The FCC long ago concluded that the category-specific data reported in ARMIS "does not serve a ratemaking purpose." The FCC has referred to the cost-allocation rules as "outdated regulatory mechanisms that are out of step with today's rapidly-evolving telecommunications marketplace" and has indicated that reducing "regulatory reliance on earnings calculations based on accounting data is essential to the transition to a competitive marketplace." Indeed, the FCC has not imposed rate-of-return regulation for years, and the formal cost-allocation scheme has become obsolete.[8]

5. *Aron (SBC) Ex. 2.1*, at 11-14.

6. *Id*., at 14-15.

7. *In re AT&T Corp. et al, Petitioners, On Petition for Writ of Mandamus to the Federal Communications Commission*, Response of Intervenors in Opposition to the Petition for a Writ of Mandamus, United States Court of Appeals for the District of Columbia Circuit, No. 03-1397, filed January 9, 2004 ("*BOC Mandamus Response*"), at 13.

8. *Id.*, at 13, footnotes omitted.

Thus, SBC believes ARMIS data to be appropriate and relevant when it serves the Company's purposes, but outdated and obsolete when it does not. SBC cannot have it both ways.

When it comes to the use of ARMIS data for setting forward-looking UNE rates (either directly or indirectly), the bottom line is, by definition and in fact, SBC does not incur historic, embedded costs on a going-forward basis. Moreover, in most cases, forward-looking costs are considerably lower than those incurred in the past. In shunning not only the UNE rates proposed by intervening parties but also the UNE rates currently in effect in Illinois, Dr. Aron's "validity check" analysis turns on the utterly unremarkable fact that UNE rates are below historic embedded costs.[9] But under the FCC's rules, the *only* costs relevant to pricing of unbundled network elements are TELRIC, *not* the ILECs' embedded costs. Thus, in arguing that the rates for the combination of unbundled switching and unbundled loops are not compensatory,[10] Dr. Aron is simply launching yet another collateral attack on TELRIC, a matter that has been resolved by the FCC and upheld several times by federal appellate courts and by the US Supreme Court.[11]

9. Direct Testimony of Dr. Debra J. Aron on behalf of SBC Illinois, SBC Illinois Exhibit 2.0, December 23, 2002 ("*Aron (SBC) Ex. 2.0*"), at Table 1.

10. *Aron (SBC) Ex. 2.1*, at 47-48.

11. *Verizon v. FCC*, 535 U.S. 467 (2002).

Q. Dr. Aron claims that "the FCC's Wireline Competition Bureau itself has found 'reasonable' TELRIC cost estimates that are developed specifically from ARMIS data."[12] Is her reference to the Wireline Competition Bureau's ("Bureau") finding accurate?

A. No. In its 272-page *Virginia Arbitration Order*, the Bureau did refer to *one* ARMIS-based cost proposal set forth by Verizon as "reasonable" (that being for aerial structure investments), yet reached the same conclusion for the (forward looking) cost proposal set forth by AT&T and WorldCom.[13] Importantly, the Bureau *declined to adopt the ARMIS-based number*, opting instead for the AT&T/WorldCom proposal, which it considered to be "the better of the two."[14] Dr. Aron neglected to mention that fact.

Even if it was appropriate to compare embedded cost to forward-looking cost, Dr. Aron's calculation of embedded cost significantly overstates SBC Illinois' actual cost of providing unbundled network elements, thus rendering moot her "validity check."

Q. If a comparison of embedded cost to forward-looking cost was considered acceptable, does Dr. Aron accurately model the embedded cost and capital expenditures associated with UNE-L and UNE-P?

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12. *Aron (SBC) Ex. 2.1*, at 15, citing *Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc., and for Expedited Arbitration*, FCC CC Docket No. 00-0218, *Memorandum Opinion and Order*, Rel. August 29, 2003 ("*Virginia Arbitration Order*"), at paras. 295-298.

13. *Id*., at para. 298.

14. *Id*., at para. 299.

A. No. Dr. Aron makes the erroneous claim that it is "essential" to evaluate TELRIC-based cost studies by testing them against actual financial data.[15] Even if this was an acceptable position, Dr. Aron has not presented the appropriate embedded cost data to support such an "apples-to-apples" comparison of embedded and forward-looking cost data as it relates to the provision of unbundled network elements. What she describes as embedded "actual costs" and cash flows that Dr. Aron models are incorrect and overstated, which means that they are incapable of providing the "validity check" upon which her testimony is premised.

Q. Please describe the flaws you have identified in Dr. Aron's embedded cost and cash flow analyses.

A. Dr. Aron's Table 1 presents a per-line comparison of UNE revenue (i.e., the rate) to book cost (including capital cost). Her Table 2 compares UNE revenue to what she characterizes as cash operating expenses and cash capital expenditures, also expressed on a per-line basis. Dr. Aron makes a number of errors in her embedded cost and cash flow calculations, specifically:

- *Overstated cost of capital*: Dr. Aron employed a cost of capital of 12.19%, as calculated by SBC IL witness William Avera.[16] As discussed in the direct testimony of

15. *Aron (SBC) Ex. 2.1*, at 8.

16. *Aron (SBC) Ex. 2.0*, at Table 1, note 2, Direct Testimony of William E. Avera on behalf of SBC Illinois, Exhibit 12.0, December 23, 2002. Even though Dr. Aron seeks to quantify SBC Illinois' *embedded costs*, she has eschewed the Company's embedded cost of capital (which is likely lower than Mr. Avera's 12.19% figure) in favor of SBC Illinois' allegedly *forward-*
(continued...)

AT&T/MCI witness Terry L. Murray, SBC Illinois' recommended cost of capital is hugely overstated; the appropriate forward-looking cost of capital for SBC Illinois is 7.54%.[17]

- *Improper application of the wholesale discount factor*: When adjusting SBC Illinois' operating expenses, Dr. Aron applies the 17.8% factor solely to loop costs, conveniently ignoring the fact that the wholesale discount represents the portion of SBC Illinois' *total embedded cost* (including depreciation, return and taxes) that is associated with retailing-specific expense items. If the 17.8% factor is to be used in the manner applied by Dr. Aron, it should be applied against the total embedded cost per line (loop, switching and transport) rather than being confined solely to loop-related costs, which is what Dr. Aron has done. And, more importantly, the total calculated avoided embedded cost using the 17.8% factor should apply to both UNE-L and UNE-P.[18] SBC Illinois avoids the entirety of retailing costs whenever the CLEC provides the service at retail to the end-user customer, whether the CLEC obtains UNE-P from SBC Illinois, or

16. (...continued)
looking cost of capital. Use of a higher cost of capital figure drives up SBC Illinois' capital costs as incorporated in Dr. Aron's calculations, thereby widening the gap between UNE costs and revenues.

17. *See* Direct Testimony of Terry L. Murray on behalf of AT&T Communications of Illinois, Inc. and WorldCom, Inc., Joint Exhibit 2.0, May 6, 2003, at Table 4.

18. Dr. Aron has got it backwards: she removed only the loop-related retailing costs from both UNE-L and UNE-P, when the appropriate calculation is to remove the loop/switching/ transport retailing costs from both UNE-L and UNE-P, since all of these costs are avoided by SBC Illinois in both situations.

obtains only the UNE loop from SBC Illinois and provides switching using its own facilities.

- *Embedded cost data includes investment related to services and network elements not subject to unbundling*: Although Dr. Aron contends that her embedded cost analysis only considers costs associated with POTS services,[19] for years, ILECs have been engaging in network deployment related to expansion of broadband and other advanced facilities, including increased optical fiber deployment in feeder and distribution plant. While these investments are driven by the ILECs' desires to provide *non-POTS* services (such as DSL), POTS continues to be provided over the upgraded network; thus, the ARMIS reports relied upon by Dr. Aron do not adequately account for these additional *non-POTS* investments. Indeed, the RBOCs themselves concede that much of the interstate costs of DSL services and interstate packet-switching services are not being assigned to those services, meaning that those costs are instead being attributed to the other regulated services reflected in their ARMIS data.[20] The presence of the costs of non-basic services in the ARMIS data that would be used to determine "actual" or

19. *Aron (SBC) Ex. 2.1*, at 21-22, 31.

20. In a pleading submitted on January 9, 2004 to the United States Court of Appeals for the District of Columbia Circuit, the RBOCs (including SBC) stated that:

> The problem of mismatches is particularly acute where special access is concerned, because the rules assign *revenues* associated with DSL services and interstate packet-switching services to the special-access element but assign a significant portion of the associated interstate *costs* to other elements. This leads to inflated rate-of-return numbers for special-access services.

BOC Mandamus Response, at 14, footnotes omitted, emphasis in original.

"reproduction cost" of the existing network is *by itself* a fully sufficient basis to discredit and disqualify the use of "actual cost" or "reproduction cost" as a basis for setting or evaluating UNE prices since, by definition and by the FCC's *Triennial Review Order*, none of these services are required to be provided as UNEs.[21]

- *Capital expenditure data reflects spending on advanced services*: Similarly, the ARMIS data characterized by Dr. Aron as "cash capital expenditures" for UNE-L and UNE-P facilities is not disaggregated between basic services and advanced services (e.g., broadband investment), as she herself admits.[22] Any attempt at reconciling TELRIC-based costs for UNE-L and UNE-P to current cash expenditures should only consider capital expenditures ascribed to basic services. Even though Dr. Aron acknowledges that capital expenditures for things unrelated to basic services should be excluded, she makes no effort to do so.

- *Volume-insensitive capital expenditures are improperly included*: Dr. Aron's embedded capital expenditure data improperly attributes current investments in volume-insensitive plant (such as distribution facilities) to the provision of UNE-L or UNE-P. SBC Illinois' distribution plant does not require further investment in order to accommodate UNE-L or UNE-P entry by CLECs; therefore, there is no "cash capital expenditure" or "cash operating expenditure" for distribution plant that is used to

21. *See, e.g., Triennial Review Order*, at paras. 255 and 537.

22. *Aron (SBC) Ex. 2.1*, at 31. *See also Aron (SBC) Ex. 2.0*, at 11, footnote 4 and Table 2, note (3), and SBC Illinois response to AT&T Data Request No. JG-14.

provide UNE-L and UNE-P facilities that would not be expended if those facilities were not being provided. Indeed, SBC Illinois' engineering guideline to meet "ultimate" demand[23] means that whatever SBC Illinois may expend on distribution plant construction will be unaffected by the presence or absence of any specific quantities of UNE-loops or UNE-P in the service mix. Capital expenditures for feeder cable and for switching, on the other hand, are somewhat volume-sensitive, i.e., they will tend to increase as the total quantity of lines in service increases, and therefore may properly be considered in such a cash analysis.

- *SBC Illinois' capital expenditures are likely grossly overstated*: Dr. Aron's capital expenditure analysis uses 2001 ARMIS data, yet since that time capital expenditures as reported by SBC Illinois' parent corporation, SBC Communications Corporation, have declined 61%, from more than $11-billion in 2001 to about $4.3-billion in 2003.[24] All else being equal and without adjusting for any of the other errors described herein, if we assume that SBC Illinois' capital expenditures have experienced a similar decline and Dr. Aron's analysis were performed today using only those adjusted numbers, it would

23. *See* Direct Testimony of Randall S. White on behalf of SBC Illinois, Exhibit 8.0, December 23, 2002, at 8. He explains that,

> ... distribution plant is sized to meet the long-term ultimate demand of residence and business customers within a specific geographic area. Unlike feeder cables, distribution cables are not as readily accessible. ... Therefore, distribution facilities in urban/suburban areas *are sized to meet the expected long-term (or "ultimate") demand* for telecommunications facilities in that neighborhood. (Emphasis supplied.)

24. Data from 9 months ending September 30, 2003, annualized. SBC Communications Inc., Third Quarter 2003 10-Q Report, filed with the U.S. Securities and Exchange Commission, filed November 12, 2003.

eliminate more than 97% of the alleged discrepancy between UNE revenues and SBC Illinois' day-to-day expenditures.[25]

This last point highlights the utter fallacy of this purported "cash flow" analysis, since it demonstrates the sensitivity of Dr. Aron's results to factors that have nothing in particular to do with UNEs and, more to the point, do not even have anything in particular to do with embedded costs. What Dr. Aron has done is to take total capital expenditures on plant additions for one year and spread these across total lines in service. Annual capital expenditures are driven entirely by forward-looking considerations like growth expectations and expansion into new services and lines of business – decidedly *not* by the quantity of service currently in place. Consider the following simple example. Suppose that three identical ILECs confronting identical costs each have exactly one million POTS lines (including UNE-P) currently in service. Company "A" expects 1% growth, and will place 10,000 new lines at a capital expenditure of $1-million. Company "B" expects 5% growth and will place 50,000 new lines at an outlay of $5-million. Company "C" expects 10% growth and will spend $10-million to install 100,000 new lines.

ILEC	Lines in service	Expected Growth	Lines added	CapEx of Additions	Aron "cash flow" per line in service
"A"	1,000,000	1%	10,000	$1-million	$ 1
"B"	1,000,000	5%	50,000	$5-million	$ 5
"C"	1,000,000	10%	100,000	$10-million	$ 10

25. $9.53 in UNE revenue minus ($6.54 in opex plus ((1 minus .61) x $8.10 in capex)) = revised cash loss of $0.17, which is $4.94 (or 97%) less than Aron's alleged cash loss using 2001 capex data of $5.11. *Aron (SBC) Ex. 2.0*, at Table 1.

Under Dr. Aron's "methodology," these annual capital expenditures would in each case be spread across the one million embedded lines, creating for each company a per-line "cash flow" of $1, $5 and $10, respectively. Obviously, these "cash flows" are being driven entirely by the plant additions, not by the embedded base. And even though our three hypothetical ILECs have identical costs, the "actual" costs as reckoned by Dr. Aron would differ by a factor of ten!

Q. What would be the consequences for SBC Illinois if the Commission were to accept Dr. Aron's concept of "cash flow" as the basis for setting UNE rates?

A. As I have noted in my direct testimony (at pages 18-19), if UNE rates were set equal to the "cash flow" (as Dr. Aron defines it), then *current* revenues (from UNEs as well as from retail services generally) would be used to finance 100% of SBC Illinois' capital investments for the current accounting period – in other words, SBC would not need to put up *any* investment capital of its own, since current revenues would then be sufficient to cover the cost of its plant additions. At the very least, Dr. Aron deserves credit for creativity.

Q. That aside, do Dr. Aron's embedded cost and cash flow analyses provide the proper context for comparing forward-looking UNE rates to actual embedded SBC Illinois costs even if her "cash flow" theory itself had any merit?

A. No. The errors in Dr. Aron's analyses, particularly those relating to improper allocations of costs and cash expenses to advanced services and/or network facilities that SBC Illinois is

not required to make available on an unbundled basis, render her calculations meaningless. Dr. Aron herself acknowledges that some of these allocations (such as between basic and advanced services) cannot be performed using ARMIS data.[26] However, the inability to make such allocations does not extend to SBC the right simply to ignore the need for them. Even if the overall "cash flow" concept as advanced by Dr. Aron had any merit for purposes of setting UNE rates – which it clearly does not – her failure to recognize that a (perhaps considerable) portion of her "cash flow" has nothing to do with UNE-P or "plain old telephone service" ("POTS") at all results in even these "cash flow" numbers being misleading for what they otherwise purport to be. Failure to properly allocate costs between network costs subject to unbundling and those not subject to unbundling provides this Commission with blatantly wrong and misleading results – yet this is precisely what Dr. Aron has done. Because Dr. Aron's analyses do not provide a calculation of SBC Illinois' actual costs of furnishing UNEs, her "validity check" is meritless, as is her recommendation to reject AT&T's forward-looking cost model results.[27]

In its comments submitted in response to the FCC's TELRIC NPRM, the Illinois Commerce Commission has disavowed the use of historic costs for purposes of judging the reasonableness of forward-looking UNE rates.

Q. Has the ICC offered an opinion on the use of embedded cost data for the purposes of setting or evaluating forward-looking UNE prices?

26. *See* footnote 22, *supra*.

27. *Aron (SBC) Ex. 2.1*, at 3.

A. Yes, it has. In response to the FCC's TELRIC NPRM,[28] the ICC submitted comments in which its position on this matter was made abundantly clear. In order to deter inefficient entry and encourage efficient facilities-based entry, the ICC submitted that "UNE prices should be set at levels that are consistent with forward-looking costs, since in competitive markets prices tend to reflect forward-looking costs."[29] The ICC specifically rejected the notion that UNE prices be based upon historical costs, as this "may lead to inefficient facilities-based entry, or discourage efficient facilities-based entry."[30] The ICC noted that it has "fundamental reservations" about using embedded costs not just in *setting* UNE rates, but also in *"judg[ing]* the reasonableness"[31] of forward-looking UNE rates, since "historical costs were incurred through the purchase of past technologies and network designs rather than forward-looking technologies and designs."[32] The ICC went on to note that, "historical costs may reflect past inefficiencies – the greater these past inefficiencies, the greater the likely difference between historical costs and forward-looking costs."[33] Moreover, the ICC submitted that "if the incumbent's historical network is not efficient on a forward-looking

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28. *Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers,* WC Docket No. 03-173, *Notice of Proposed Rulemaking*, Rel. September 15, 2003 ("*TELRIC NPRM*").

29. *Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers,* WC Docket No. 03-173, Initial Comments of the Illinois Commerce Commission, December 16, 2003 ("*ICC TELRIC NPRM Comments*"), at 12.

30. *Id*., at 13.

31. *Id*., at 14 (emphasis supplied).

32. *Id*.

33. *Id*.

basis, the ILEC should not necessarily be allowed to recover its embedded costs from CLECs through its UNE rates."[34]

Q. What was the ICC's ultimate recommendation to the FCC on this point?

A. The ICC's ultimate recommendation to the FCC was that it "should not use historical costs to judge the reasonableness of forward-looking costs, since historical costs were incurred through the purchase of past technologies and network designs rather than forward-looking technologies and designs."[35] The ICC's position is thus entirely consistent with my own, that being that Dr. Aron's embedded cost and cash flow analyses are ill-conceived and unhelpful in establishing forward-looking costs for UNEs.

Whatever harm SBC Illinois might suffer from competitor use of UNE-L and UNE-P would be even greater if those same CLECs were to instead migrate their customers to the CLECs' own facilities-based networks.

Q. In her rebuttal testimony, Dr. Aron advances the theory that the ostensibly low UNE rates in effect in Illinois discourage CLEC investment and force SBC Illinois to "subsidize" its CLEC rivals on an ongoing, permanent basis.[36] Do you agree?

34. *Id*., at 15.

35. *Id*., at 96, recommendation no. 3.

36. *Aron (SBC) Ex. 2.1*, at 36-38.

A. No. Dr. Aron theorizes that if UNE rates were higher, CLECs would be incented to construct their own network facilities.[37] In advancing this contention, Dr. Aron ignores entirely the FCC's conclusion, initially articulated in the *Local Competition Order* and recently reiterated in the current *TELRIC NPRM*,[38] that

> ... in stating that forward-looking [TELRIC] costs were intended to send appropriate economic signals, we mean that UNE prices in excess of forward-looking costs would encourage competitors to build facilities when the more efficient course might be to lease facilities from the incumbent LEC, while prices below forward-looking costs might encourage them to rely on the incumbent's facilities when the more efficient course might be to construct their own facilities.[39]

The FCC has thus specifically addressed the precise concern about which Dr. Aron testifies, and has concluded that *UNE prices set at TELRIC will work precisely to encourage CLEC investment only in those instances where the CLEC can be more efficient than the ILEC*.

Although Dr. Aron fails to offer any substantive evidence either to refute the FCC's conclusion or otherwise to support her own theory regarding CLEC incentives to invest, it is nonetheless instructive to consider the consequences to SBC Illinois if her theory is correct, i.e., if SBC Illinois was permitted to increase its UNE rates to (at least) the level of historic,

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37. *Id*.

38. *Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers,* WC Docket No. 03-173, *Notice of Proposed Rulemaking*, Rel. September 15, 2003 ("*TELRIC NPRM*").

39. *Id.*, at para. 2.

embedded cost and if, by so doing, CLECs migrated away from SBC Illinois UNEs to their own facilities-based networks.

Q. What would be the impact upon SBC Illinois if UNE prices were raised to levels that are closer to Dr. Aron's alleged "actual" cost?

A. Under her theory, if UNE rates were set at what Dr. Aron characterizes as "economically rational"[40] levels (i.e., based upon embedded costs), CLECs would be able to, and would have incentive to, construct their own facilities and serve their customers on the CLECs' own networks. But if Dr. Aron is correct that these pricing signals will cause CLECs to construct and utilize their own network facilities and switches, SBC Illinois will be made distinctly *worse off* because, in addition to losing the *retail* revenue to competing LECs (as is already occurring under current UNE prices), SBC Illinois would also lose the *wholesale* UNE revenue as well, at least in the short run, because most network costs are relatively fixed and non-avoidable. In the long run, of course, SBC Illinois should be able to avoid costs equal to TELRIC, and thus be indifferent as to whether the CLEC continues to utilize SBC Illinois UNEs or migrates its customers to the CLEC's own network.

Q. Is the gap between backward-looking embedded cost and forward-looking UNE-L and UNE-P revenues appropriately considered a financial loss?

40. *Aron (SBC) Ex. 2.1*, at 80.

A. No. Dr. Aron repeatedly claims that SBC Illinois' current UNE prices are non-compensatory when compared to embedded costs, thus constituting a financial loss for the Company.[41] Her portrayal of the gap between backward-looking embedded cost and UNE-L and UNE-P revenues as a "loss" appears to be based upon a fundamental misunderstanding of the concepts of marginal (incremental) vs. average (fully distributed) cost.[42] She appears to assume that SBC Illinois would be better off by $16.63 (i.e., $28.85 in cost[43] vs. $12.22 in revenues) for each UNE-P that a CLEC discontinues in favor of its own facilities. But if SBC Illinois does not avoid any of that $28.85 in cost, it will actually be made *worse off* by $12.22 for each UNE-P customer that the CLEC shifts to its own network. Indeed, as the FCC noted at footnote 507 of the *Triennial Review Order*, the court in *USTA* suggested that "even where the rate for an individual customer service offering may not cover the incumbent LECs' fully distributed historical book cost, that does not mean that such customers as a group are

41. *Id*., at 33 and 47.

42. As the FCC correctly notes, at paragraph 157 of the *Triennial Review Order*, "... describing certain rates as being "above or below cost" itself involves complex questions concerning how costs should be defined. In the context of implicit support flows, describing a rate as "below cost" typically means that the rate is lower than the incumbent LEC's fully distributed historical cost of providing service. This definition of "cost" does not necessarily provide a valid basis for comparison since in a fully competitive market, firms would typically price a service offering at long run incremental cost, *which in the telecommunications industry may be considerably lower than fully distributed historical cost*." Footnotes omitted, emphasis supplied. *Review of the Section 252 Unbundling Obligations of Incumbent Local Exchange Carrier*, CC Docket No. 01-338; *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996,* CC Docket No. 96-98; *Deployment of Wireline Services Offering Advanced Telecommunications Capability,* CC Docket No. 98-147, *Report and Order and Order on Remand and Further Notice of Proposed Rulemaking*, Rel. August 21, 2003 ("*Triennial Review Order*"), at para. 157.

43. This cost figure reflects Dr. Aron's per UNE-P cost without adjustment for avoided retail costs, which she calculates to be $3.23. *Aron (SBC) 2.1*, at 25.

unprofitable or undesirable to serve."[44] Nothing in Dr. Aron's direct or rebuttal testimony addresses, let alone proves, that UNE-P is unprofitable for the BOC to serve when correctly considered with respect to the relevant incremental cost.

In fact, Dr. Aron's testimony provides a basis for estimating the potential impact of SBC Illinois' wholesale revenue losses that would occur if CLECs migrated their customers to the CLECs' own networks. The average embedded per-line cost that Dr. Aron derived from ARMIS data is calculated by dividing the total embedded cost of operating the SBC Illinois loop, switching and transport network by the quantity of revenue-producing (wholesale + retail) lines in service. Dr. Aron states that SBC currently receives $12.22 per month in revenue for each UNE-P line it provides. But if the CLEC chooses instead to construct its own facilities and to provide service to its customers using those CLEC-owned facilities, SBC Illinois would then *no longer receive the $12.22 in monthly revenue per UNE-P that it now realizes*. The only way in which the Company would be better off financially under that circumstance is if it would immediately be able to avoid at least $12.22 in monthly cost per (former) UNE-P line that is transferred to a CLEC-owned network. But in view of Dr. Aron's testimony that SBC Illinois may "not be able to cut any meaningful costs as a result of serving wholesale/UNE rather than retail lines,"[45] there is no basis to conclude that SBC would actually avoid $12.22 – or perhaps any – cost when a CLEC migrates a customer to the CLEC's own network. Thus, and directly contrary to Dr. Aron's claim, SBC Illinois' "losses" would be *even greater* where a CLEC took its customers away from the Company's

44. *Triennial Review Order*, at footnote 507, citing *USTA*, 290 F.3d, at 422.

45. *Aron (SBC) Ex. 2.0*, at 9-10, footnote omitted.

network and onto its own, because SBC Illinois would forego all UNE revenue but would avoid few, if any, network costs.

And, significantly, when expressed on an average embedded cost basis (as Dr. Aron has done here), when a CLEC moves a customer to its own network, the BOC's average embedded cost would actually *increase* because the total, largely fixed costs of the BOC's network would now have to be spread across a smaller number of revenue-producing lines. Thus, if UNE rates were increased and if CLECs responded by constructing their own networks, SBC Illinois revenue losses would be *even higher* than those being claimed by Dr. Aron.

Q. Would raising SBC Illinois' UNE rates increase or decrease the risk of financial losses to SBC Illinois?

A. SBC Illinois' risk of incurring such financial losses to facilities-based competitors is significantly elevated if UNE prices are set at historic embedded cost rather than at forward-looking TELRIC, unless of course such prices work simply to force CLECs out of the market altogether. UNE prices in excess of TELRIC would stimulate *inefficient* CLEC investment – i.e., it would induce CLECs to construct facilities in situations where the ILEC's forward-looking costs are actually lower than the CLECs – and in so doing exacerbate the "losses" about which Dr. Aron and SBC are so concerned. Put another way, SBC Illinois should have as much interest in "getting it right" insofar as providing CLECs with correct pricing signals as the CLECs themselves: Incenting CLECs to make inefficient

investments is costly to the CLECs and results in inefficient migration off of the SBC Illinois network, with the resulting loss of revenue to SBC Illinois.

In fact, the only circumstance in which SBC Illinois would be made better off financially by forcing CLECs off the SBC network is if that strategy works to force CLECs out of business altogether, permitting SBC Illinois to recapture the (then-former) CLEC local service customers and in so doing to remonopolize the local service market. Of course, that outcome would directly contradict and unambiguously invalidate SBC and the other RBOCs' persistent contention that CLECs are "not impaired" without access to unbundled switching.[46]

Dr. Aron's evidence does not support her contention that the TELRIC-based UNE prices currently in effect in Illinois reduce SBC Illinois' incentive for investment in its network.

Q. Dr. Aron claims that "the huge increase in UNE-P, intensified by the below-cost UNE-P prices, should be expected to discourage investment" by SBC Illinois,[47] and that "prices that do not compensate the ILEC for its costs create a disincentive ... to invest in the network."[48] Is she correct?

A. No. Dr. Aron assumes that all of SBC's infrastructure investment decisions are based solely upon UNE prices, which is highly unlikely. Indeed, the FCC, in its recent *Triennial Review*

46. *See generally, Triennial Review Order*, at paras. 419-532.

47. *Aron (SBC) Ex. 2.1*, at 34.

48. *Id*., at 42.

Order, reached the conclusion that virtually all of the ILEC circuit switching capability that could possibly be required to serve the ILECs' legacy networks has already been deployed.[49] In other words, these are *not* facilities in which ILECs are required to make any significant new investments – regardless of the rates set for unbundled local switching in a given state. To the extent that ILECs deploy newer packet switching facilities, the FCC "decline[d] to unbundle packet switching as a stand-alone network element."[50] Thus, not only is there no basis for a claim that low UNE prices discourage ILEC network investment, but they would actually appear to *encourage* investment by the ILEC in newer, advanced technologies that are not subject to unbundling.[51]

Moreover, to imply that the requirement for SBC Illinois to accept revenue equal to TELRIC-based UNE rates, rather than receive its full embedded cost for providing the element(s), "discourages" SBC Illinois from investing in its network, Dr. Aron shows a fundamental misunderstanding of investment incentives. A decision by a firm to invest in new plant and equipment is *always* based upon forward-looking costs and future demand (revenue) considerations. The $28.85 "cost" that Dr. Aron ascribes to UNE-P and which she contends will be a disincentive for SBC Illinois to invest given the $12.22 UNE-P price is *entirely irrelevant to a forward-looking capital budgeting decision*. What is relevant is

49. *Triennial Review Order*, at para. 448.

50. *Id.*, at para. 537.

51. Indeed, it is likely that this policy is responsible for Verizon's recent announcement to "dramatically accelerate the evolution of its nationwide wireline network to packet-switching technology." Verizon News Release, "Verizon Selects Nortel Networks to Accelerate Building of Nation's Largest Converged, Packet Switched Wireline Network Using Voice-Over-IP," January 7, 2004. Available at http://newscenter.verizon.com/ (accessed January 8, 2004).

not the historic cost, but the forward-looking cost and its relationship to future revenues. If the $12.22 price that SBC Illinois can realize from UNE-P is sufficient to cover its forward-looking incremental cost (including recovery of investment and profit), then SBC Illinois will *not* be discouraged from investing in the facilities required to provide this service. And that is precisely what the TELRIC standard represents – i.e., the forward-looking long-run incremental cost that the ILEC will incur to expand its network.

Dr. Aron has narrowly confined the analysis of "losses" to those arising from CLEC entry into the local market, and has ignored altogether the substantial – and more than offsetting – gains that SBC Illinois will be permitted to realize from its now-authorized entry into the in-region long distance market.

Q. What markets does Dr. Aron consider when making her claim that current UNE prices are not compensatory to SBC Illinois?

A. Dr. Aron considers only the market for local exchange service when conducting her analysis of the financial "loss" attributed to SBC Illinois' current UNE rates. Yet by enacting section 271 of the 1996 Act, Congress expressly linked the opening of the BOCs' local service markets to CLEC competition with the BOCs' ability to enter and to compete in the in-region long distance market. Section 271 provides that if the Bell Operating Companies adopt a specific set of measures (known as the "competitive checklist"[52]) to remove certain specific barriers to CLEC entry into the local service market – measures that closely parallel the various unbundling and interconnection obligations of sections 251 and 252 that are being addressed in the FCC's *Triennial Review Order* – they will be permitted to enter the

52. 47 U.S.C. §271(c)(2)(B).

in-region long distance market. The FCC has determined that the BOCs have satisfied the "competitive checklist" and other requirements of section 271 in all 48 states and the District of Columbia in which the BOCs operate,[53] and BOCs have been permitted to enter and to offer long distance service in all of those states. In determining whether the BOCs have, in fact, opened their local markets, the FCC has evaluated the extent to which the BOCs provide UNE-P at cost-based rates and nondiscriminatory terms.[54] Since gaining entry, the RBOCs have been able to make enormous – indeed, *unprecedented* – gains in long distance market share.[55]

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53. *See* www.fcc.gov/Bureaus/Common_Carrier/in-region_applications/.

54. For example, in evaluating SBC's "Track A" compliance in Kansas, the FCC specifically pointed to service provided by two carriers to residential subscribers "exclusively over their own facilities *using the UNE platform*." *Joint Application of SBC Communications, Inc. et al. for Provision of In-Region, InterLATA Services in Kansas and Oklahoma*, 16 FCC Rcd 6237 (2001) ("*Kansas/Oklahoma 271 Order*"), at paras. 40- 42 (emphasis supplied). *See also, e.g., Joint Application by BellSouth Corporation, BellSouth Telecommunications, Inc., and BellSouth Long Distance, Inc for Provision of In-Region, InterLATA Services In Georgia and Louisiana,* CC Docket No. 02-35, *Memorandum Opinion and Order*, 17 FCC Rcd 9018 (2002), at paras. 3, 13, 15,103, 122-26, 136, 151, 155; *Application by Verizon New Jersey Inc., Bell Atlantic Communications Inc., (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions), Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization to Provide In-Region InterLATA Services in New Jersey,* WC Docket No. 02-67, *Memorandum Opinion and Order,*17 FCC Rcd 12275 (2002) ("*New Jersey 271 Order*"), at paras. 3, 11; *Application of Verizon New England Inc., et al., for Authorization to Provide In-Region, InterLATA Services in Massachusetts,* CC Docket No. 01-9, *Memorandum Opinion and Order*, 16 FCC Rcd 8988 (2001) ("*Massachusetts 271 Order*"), at paras. 78-80, 118; *Application by Bell Atlantic New York for Authorization Under Section 271 of the Communications Act To Provide In-Region, InterLATA Service in the State of New York,* CC Docket No. 99-295, *Memorandum Opinion and Order*, 15 FCC Rcd 3953 (1999), at paras. 230, 233.

55. SBC reports record quarter and strong annual growth of long distance service. "Against what continues to be a very challenging industry environment, we achieved a record quarter in long distance and DSL, and our long distance launch in the Midwest this past fall was the strongest of any of our regions," said Edward E. Whitacre Jr., SBC chairman and chief executive
(continued...)

The opening of the RBOC-dominated local market is the *quid pro quo* for BOC long distance entry. Indeed, under the Act, the RBOCs' opportunity to provide bundled local and long distance services needs to be paralleled by an equivalent opportunity for long distance providers, such as AT&T, to offer ubiquitous local telephone service in conjunction with their long distance offerings if the long distance carriers are to be able to compete. However, Dr. Aron's references to financial "losses" are narrowly confined to the *local* service market.

Q. Has SBC Illinois satisfied the section 271 "competitive checklist" and received interLATA authority?

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55. (...continued)
officer. *See* SBC News Release, "SBC Reports Strong 4th Quarter Long Distance Launch in Midwest, Improved Line Trends, Record Gains in Long Distance, DSL," January 27, 2004. Available at http://www.sbc.com/gen/press-room?pid=4800&cdvn=news (accessed February 19, 2004). SBC also reported total annual growth in long distance lines at 136% from 6.1 to 14.4 million lines at the end of fourth quarter 2003. *See* SBC Communications, Investor Briefing, released January 27, 2004, at 8. Verizon reports that "The composition of our overall revenues continues to shift to newer, non-traditional sources, fueled by high levels of customer and revenue growth in wireless, long-distance and broadband," and that they added 1.3 million long distance lines, bringing their total to 15.9 million lines. *See* Verizon Investor News Release, "Verizon Communications Reports Third-Quarter Earnings Highlighted by Strong Customer Growth, Solid Cash Flow," October 28, 2003. Available at http://investor.verizon.com/news/20031028/ (Accessed February 19, 2004.) BellSouth touts that it has 4 million long distance customers after providing service for just 18 months. Additionally state-level penetration rates are reported to be as high as 34%. *See* BellSouth, 4th Quarter 2003 Investor Briefing, released January 22, 2004 at 5. Qwest increased its long distance subscriber base by 36% in just the last quarter, bringing its total number of long distance customers to 2.3 million. *See* Qwest Press Release, "Qwest Communications Reports Fourth Quarter 2003 Net Loss Per Diluted Share of $0.17; Full Year 2003 Earnings per Diluted Share of $0.93," February 19, 2004. Available at http://www4.qwest.com/ireye/ir_site.zhtml?ticker=q&script=700 (accessed February, 19, 2004).

A. Yes. The FCC granted Illinois interLATA authority on October 15, 2003.[56] While it is of course true that SBC Illinois did not have section 271 authority at the time that Dr. Aron's direct testimony was prepared, that is no longer the case, and therefore one cannot ignore altogether the enormous gains that the RBOCs have concurrently been enabled to achieve by virtue of having putatively "satisfied" the requirements of section 271. To the extent that setting UNE-L and UNE-P rates at levels that exceed TELRIC eliminates one of the essential prerequisites for the FCC's decision to allow the BOCs into the long distance market, the change being advocated here by SBC Illinois casts doubt on the Company's ongoing satisfaction of section 271.[57] Conversely, so long as the SBC Illinois continues to enjoy the benefits of long distance entry, any claimed "loss" cannot be evaluated in isolation from the substantial and offsetting *gains* that the same BOC can be expected to achieve as a direct outcome of the *1996 Act*'s market-opening requirements that are now under fire. Rather, in contrast, if there actually is any "loss" being experienced by SBC Illinois under current TELRIC-based UNE rates, which is extremely doubtful at best, it would still be an

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56. *Joint Application by SBC Communications Inc. Illinois Bell Telephone Company, Indiana Bell Telephone Company Incorporated, the Ohio Bell Telephone Company, Wisconsin Bell, Inc., and Southwestern Bell Communications Services, Inc. For Authorization to Provide In-Region, InterLATA Services in Illinois, Indiana, Ohio, and Wisconsin,* WC Docket 03-167, *Memorandum Opinion and Order*, FCC No. 03-243, 18 FCC Rcd 21543 (2003).

57. In the instant proceeding, SBC Illinois seeks to increase the very UNE rates that the FCC and the ICC have embraced as being "just, reasonable, and non-discriminatory." Should SBC Illinois prevail in raising its UNE rates in the instant proceeding (which it should not), the FCC does possess the authority under section 271(d)(6)(A) to review any future rate increases implemented by Illinois Bell, and to suspend the rates, suspend or revoke SBC Illinois' section 271 authority, or impose other penalties if it determines that the rate increases are not TELRIC compliant. 47 U.S.C. § 271(d)(6)(A).

extremely small price for SBC to pay in exchange for what the Company has the potential to achieve in the in-region long distance market.

Contrary to Dr. Aron's claims, econometric analyses that she has conducted confirm the existence of strong, statistically significant relationships between surrogates for TELRIC costs and the UNE-P prices adopted by state regulatory commissions.

Q. At page 77 of her rebuttal testimony, Dr. Aron presents the results of certain regression analyses that she contends demonstrate that "state commissions have in fact adopted UNE prices that vary substantially across states for reasons that have little to do with objective, measurable variations in their relative costs." Is Dr. Aron's conclusion actually supported by the analyses she presents?

A. No, it is not. In fact, when the outputs of her regression analyses are assessed using standard statistical criteria, they compel precisely the *opposite* conclusion, i.e., they demonstrate that there are strong, statistically significant relationships between the UNE-P prices adopted by state regulatory commissions and the TELRIC "cost proxies" that she evaluates them against. As I shall explain, Dr. Aron conveniently ignores the straight-forward conclusions to be drawn from her analyses, and instead creates an entirely unrealistic "straw man" hypothesis that she can then easily reject so as to be able to reach her patently wrong conclusion.

Q. Please summarize the regression analyses that Dr. Aron has presented.

A. Dr. Aron states that she has conducted ordinary least squares ("OLS") regressions to test the relationship between the UNE-P prices that state regulatory commissions have established across the country, and certain approximations to the underlying TELRIC costs for UNE-P. Recall that economists use regression techniques to identify and quantify relationships among different variables. In performing such analyses, economists will posit (hypothesize) a relationship to be tested and, on the basis of the results obtained, either accept or reject the hypothesized relationship using standard and widely accepted statistical tests. The hypotheses to be tested using econometric regression models are ordinarily framed in terms of the degree to which one or more specific explanatory variables (the independent variable or variables) are related to a particular output (the dependent variable).

In this instance, Dr. Aron has used three different surrogates for the TELRIC costs of UNE-Ps to serve as the independent variable(s). These three surrogates (which Dr. Aron refers to as "cost proxies") are:

(1) estimates of the historical, booked cost for UNE-Ps that she has derived from ARMIS data (the "ARMIS/Historical UNE-P Cost Estimate");

(2) estimates of the density of access lines per square-mile for the RBOCs ("Line Density"); and

(3) estimates of the forward-looking UNE-P cost produced by the FCC's "Synthesis Model" ("FCC/Forward-Looking UNE-P Cost Estimate").

Dr. Aron has performed four regressions in total: the first three consider UNE-P prices as a function of each of those cost measures separately (i.e., UNE-P prices as a function of the ARMIS/Historical UNE-P Cost Estimate alone), and the fourth considers the three cost

measures in combination. Dr. Aron has adopted the following hypothesis as the test applied to each of the four models:

> If the UNE prices adopted by state commissions are applied consistently across states and properly reflect the carriers' forward looking costs of providing UNEs [as reflected in the selected 'cost proxies'], then the OLS model should "fit" the data closely; that is, the model's adjusted R-squared value should be close to one.[58]

Q. Is this a reasonable way to specify the hypothesis that is to be tested?

A. No, certainly not. Indeed, this specification of the "hypothesis" to be tested is so extreme as to constitute nothing more than a "straw man" theory whose rejection is hardly surprising and is certainly of no import whatsoever.

Q. Please explain.

A. The R-Squared value in any model is a calculation of the percentage of the variation in the dependent variable that is explained by the variation in the independent variables. An R-squared value of one would indicate that the model takes into account *every possible source of variation in the dependent variable.* This is a nearly *impossible* standard, and is rarely if ever achieved – or even expected – in practice. Even models containing dozens or hundreds of explanatory variables are not expected to – and do not – satisfy this hurdle. In the instant case, Dr. Aron has presented four models, three of which have only *one* explanatory

58. *Aron (SBC) Exh. 2.1*, at 77.

variable, and the fourth of which has three. Moreover, as Dr. Aron freely admits, her explanatory variables are "cost proxies," rather than the specific TELRIC costs that had been examined by the state PUCs and used as the basis for the UNE prices that they adopted.[59] It is absurdly unrealistic of Dr. Aron to expect that any of her highly simplified models should have near-total explanatory power, as her hypothesis would require. Indeed, if any of Dr. Aron's models could explain UNE prices so perfectly, as acceptance of the specified hypothesis would require, then state regulatory commissions would not have to bother with cost modeling and instead could use Dr. Aron's model equation to price UNE-P.

Q. Can you provide an illustration of the extreme nature of Dr. Aron's hypothesis?

A. Yes. The utter absurdity of Dr. Aron's "R-squared close to one" hypothesis can be readily demonstrated by considering one of her models in particular, e.g. the single-variable model based upon Line Density.

There is no question that Line Density is an important cost driver for subscriber outside plant loops. Longer average loop lengths and smaller cable sizes typical of low density areas are an important factor in making loop costs in low density areas higher than in more densely populated parts of the ILEC's service territory. However, Line Density is only one of many factors that influence loop cost. Others include terrain, local construction requirements (e.g., overhead pole lines or underground cable), labor rates, relative mix of feeder

59. Indeed, as I explain in more detail below, Dr. Aron's Line Density variable is not a direct measure of costs at all, but instead represents a factor that cost analysts generally agree has a significant influence on cost levels.

and distribution cable, use of fiber optics in distribution and feeder plant, and many others. *There is simply no intuitive basis to expect that Line Density by itself should account for fully or even nearly 100% of the variation in UNE-P prices from state to state, as Dr. Aron's hypothesis would require*.

Q. Is Dr. Aron's hypothesis similarly unrealistic for the other three models she has devised?

A. Yes, it is. As I shall explain later in my testimony, it is entirely possible (and in fact, true) that there are identifiable and statistically significant relationships between the UNE-P price and each of the three "cost proxy" explanatory variables she has used. However, there is no intuitive basis whatsoever to expect that these factors – separately or in combination – could possibly "explain" or "account for" anything even remotely close to 100% of the variation in the price of UNE-P.

Q. Are there particular characteristics of the Aron models that make them less likely to have near-total explanatory power, as would be required to produce R-squared values nearly equal to one?

A. Yes. The Aron models are cross-sectional analyses in which all of the sample data is as of a specific, single point in time. It is generally acknowledged in the economics profession –

and expected – that cross-sectional models, by their nature, will generate lower R-squared values than time-series models.[60]

Q. Is Dr. Aron's exclusive focus upon the model's R-squared values consistent with accepted statistical practice?

A. No, and this is perhaps the most important point to recognize. Dr. Aron is placing much more emphasis upon R-squared values than accepted statistical practice allows. Statisticians evaluate R-squared values rather subjectively, and that *there is no general consensus about what an acceptable R-squared value should be*.[61] Moreover, there is no econometric basis for dismissing a model as having no significance because of any particular R-squared value. As Kennedy (1992) has explained:

> In general, econometricians are interested in obtaining 'good' parameter estimates where 'good' is not defined in terms of R-Squared. Consequently the measure R-Squared is not of much importance in econometrics. Unfortunately, however, many practitioners act as though it is important, for reasons that are not entirely clear.[62]

60. See, e.g., Peter Kennedy, *A Guide to Econometrics*, Third Edition, MIT Press (Cambridge, MA), 1992 ("Kennedy (1992)"), at 27.

61. *Id.*

62. *Id.* at 28. See also, *id.* at 27 : "Because the R-Squared and OLS criteria are formally identical, objections to the latter apply to the former. The most frequently voiced of these is that searching for a good fit is likely to generate parameter estimates tailored to the particular sample at hand rather than to the underlying 'real world.' Further, a high R-Squared is not necessary for "good" estimates; R2 could be low because of a high variance of the disturbance terms, and our estimate of beta-hat could be "good" on other criteria..."

Q. Dr. Selwyn, in view of all of these liabilities to the "R-squared close to one" hypothesis that Dr. Aron chose to apply, what would be the appropriate basis for assessing her four models?

A. In generally-accepted statistical practice, the appropriate hypothesis to apply to each of the four models would be to ask whether the model exhibits a statistically significant relationship between the explanatory (dependent) variable(s) and the independent variable, i.e., UNE-P prices. This is most commonly done by evaluating whether the coefficients produced by the regression are significantly different from zero, and applying a *t*-test to make that determination.[63] In a *t*-test, the so-called *t*-statistic (the ratio of an estimated coefficient to its standard error) is compared to a threshold value selected to assure a chosen level of statistical significance (e.g., significance at a 95 percent confidence level). A recent paper co-authored by longtime BOC consultant Prof. Jerry A. Hausman of MIT describes the process as follows:

> To test whether an individual coefficient is statistically significantly different from zero, one calculates the ratio of the estimated coefficient to its standard error [the *t*-statistic], and then compares this ratio against a threshold value. For example, in large samples, an estimated coefficient is said to be significantly different from zero at a 5% significance level if the absolute value of the ratio equals or exceeds 1.96.[64]

63. *Id.,* at 55-56; see also, Mary S. Younger, *A First Course in Linear Regression*, Second Edition, Duxbury Press (Boston), 1985, at 213-219.

64. Hausman, Jerry A. Gregory K. Leonard and J. Gregory Sidak, "Does Bell Company Entry into Long Distance Benefit Consumers," 70 *Antitrust Law Journal* 463, 472, fn 32. Ironically, Hausman *et al* were applying *t*-tests in an attempt to rationalize the validity of regressions that they had performed that produced particularly low R-squared values – in the range of .01 to .05.

Q. Has Dr. Aron presented *t*-statistics for her four models?

A. No, but they can be calculated readily from the coefficients and standard errors that are shown on Schedule DJA-R1 attached to her rebuttal testimony. I have performed those calculations, as described below.

Q. Do the *t*-statistics derived from Dr. Aron's models show strong statistical relationships between the "cost proxies" she has used and UNE-P prices?

A. Indeed, yes. If we evaluate the model's *t*-statistics relative to the commonly-used standard of a 95 percent confidence level (i.e., a null hypothesis that the model coefficients are not statistically different from zero at a 95 percent level of confidence), all four models exhibit statistically significant relationships (i.e., the null hypothesis is rejected). Indeed, the statistical significance of most of the *t*-statistics are very high.

For example, Dr. Aron's Line Density model estimates the Line Density coefficient at –3.733 with a Standard Error of 0.684, indicating a *t*-statistic of –5.46.[65] At 48 degrees of freedom (the number of observations in the data set), that corresponds to the 99.999% confidence level (for a two-tailed test).

65. That is, –3.733 ÷ 0.684 = –5.458. See *Aron (SBC), Exh. 2.1*, Schedule DJA-R1, column "Regression (3)."

Similarly, in the ARMIS/Historical Cost model, the coefficient is estimated at 0.558 with a Standard Error of 0.144, indicating a *t*-statistic of 3.88, which satisfies the 99.9% confidence level (two-tailed).[66]

In the FCC/Forward-Looking Cost model, the coefficient of the explanatory variable was estimated at 0.565 with a Standard Error of 0.151, indicating a *t*-statistic of 3.74, i.e., the 99.9% confidence level (two-tailed).[67]

In Dr. Aron's fourth model, which combines the three "cost proxies," the model results shows that two of the three variables are significant at the 95% level and, in fact, the Line Density variable is significant at the 99% level.[68] It is notable, however, that the FCC/ Forward-Looking UNE-P Cost Estimate variable is *not significant* when run in combination with the other two variables. Although it is not possible to know for certain, given the limited discussion and absence of regression statistics that are customarily included with regression model results, it seems likely that Dr. Aron's three-variable model suffers from an econometric problem known as multicollinearity.[69]

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66. That is, 0.558 ÷ 0.114 = 3.875. *Id.*, at Schedule DJA-R1, column "Regression (1)."

67. That is, 0.565 ÷ 0.151 = 3.742. *Id.*, at Schedule DJA-R1, column "Regression (2)."

68. The ARMIS/Historical UNE-P Cost Estimate variable has a *t*-statistic of 2.19 (0.304 ÷ 0.139 = 2.187), which is significant at a 95% level (two-tailed). The Line Density variable has a *t*-statistic of 2.85 (2.724 ÷ 0.957 = 2.846), which is significant at a 99% level (two-tailed). *Id.*, at Schedule DJA-R1, column "Regression (4)."

69. Multicollinearity arises when some or all of the explanatory variables are correlated with each other. Checks for econometric issues such as multicollinearity or heteroskedasticity are (continued...)

Q. Dr. Selwyn, what are your overall conclusions based on the *t*-tests that you have just described?

A. With the possible exception of the fourth model (due to the apparent multicollinearity problem that I have just discussed), the *t*-tests that I have performed on the regression results presented by Dr. Aron demonstrate the existence of strong, statistically significant relationships between the UNE-P prices and each of the "cost proxies" she used, despite the fact that in each case the explanatory variable accounted for only a fraction of the variation in the price of UNE-P. Put simply, Dr. Aron's models *affirmatively prove precisely the opposite of what she was attempting to demonstrate*.

Because her regression models produced precisely the opposite of what she was attempting to prove, Dr. Aron simply *ignored* the high degree of confidence that each of the three single-variable models established with respect to each of the three explanatory variables being tested, and instead focused entirely upon the essentially spurious R-squared values. While Dr. Aron did identify (with an asterisk and footnote) those coefficients that are statistically significant, she omitted any mention or acknowledgment of these critically important

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69. (...continued)
customarily performed by regression software and are often reported along with the results of the model, although that was not the case here. Comparing the *t*-statistic for the FCC/Forward-Looking UNE-P Cost Estimate variable in both models (which is calculated by dividing the estimated coefficient by the standard error), we see that the value drops from 3.74 (99.999% confidence level) in the single-variable model to 0.483 in the multiple-variable model, which indicates a lack of statistical significance. This dramatic shift in significance (in light of the relatively small changes to the ARMIS/Historical and Line Density variables) is consistent with multicollinearity.

results, and instead pointed out only that her "straw man" has indeed been knocked down.[70] Given Dr. Aron's faulty hypothesis and the skewed presentation of her model's results, the Commission should give no weight to her conclusions, particularly her assertions that "state commissions have in fact adopted UNE prices that vary substantially across states for reasons that have little to do with objective, measurable variations in their relative costs" and that "state commissions exercise their discretion in establishing UNE prices in ways that are random with respect to costs ."[71]

70. *Id.*, at Schedule DJA-R1 (footnote indicating that coefficient estimates are "Significant at the 5% level.").

71. *Id.*, at 77, lines 7-9 and 20-21, respectively.

REBUTTAL TO MR. JOHN SNEED

Mr. Sneed's benchmark tests are fundamentally flawed because they do not measure forward-looking costs against a meaningful standard.

Q. Have you reviewed the rebuttal testimony of SBC witness John Sneed?[72]

A. Yes, I have.

Q. Mr. Sneed recommends that the Commission should consider benchmarking the forward-looking cost proposals for SBC Illinois against SBC's "actual" costs.[73] Do you agree that this is a useful exercise?

A. No, I do not. As was the case with Dr. Aron's analysis discussed at length above and in my direct testimony, Mr. Sneed's benchmark tests are fundamentally flawed because they do not measure forward-looking costs against a meaningful standard.[74] By definition, TELRIC-based UNE rates are established using forward-looking costs, which are simply not comparable to the historic embedded costs of the incumbent carrier. While the principle of benchmarking is not inherently flawed, Mr. Sneed ignores the basic premise that, in order to be useful, a benchmark comparison must be performed against a related and meaningful

72. Rebuttal Testimony of Mr. John Sneed on behalf of SBC Illinois, SBC Illinois Exhibit 20.0, January 20, 2004 ("*Sneed (SBC) Ex. 20.0*").

73. *Sneed (SBC) Ex. 20.0*, at 6-7.

74. *Id*., at 6. The "authority" Mr. Sneed cites to for support of his analysis is none other than SBC Illinois witness Dr. Aron.

standard. Since there is no expectation that SBC Illinois' efficient forward-looking costs should have any particular relationship with its inefficient backward-looking embedded costs, Mr. Sneed's benchmarking standard suffers from the same flaws as Dr. Aron's "validity check," and is similarly useless.

Additionally, Mr. Sneed cites Judge Easterbrook's conclusion on the matter, who emphasized that one cannot "know the long-run costs of the most efficient technology without understanding the costs of today's most efficient producers."[75] By making a comparison to SBC Illinois' "actual" (i.e., embedded) costs, Mr. Sneed appears to have crowned SBC Illinois as the "most efficient producer," a title that is neither proven nor deserved.

Q. Mr. Sneed also makes several comparisons between the embedded costs of a monopolistic local wireline provider and the embedded costs of an international long distance carrier, an international cable provider, and a national wireless provider. Are these comparisons useful in setting SBC Illinois' forward-looking UNE rates?

A. No. These comparisons are also unhelpful, as they compare data associated with several unrelated lines of business of different scales that would face very different embedded cost structures. There is no reason to assume any specific relationship between SBC's per-line investment costs with the per-line/customer investment costs for cable, long distance and

75. *Id*., at 7, citing *AT&T Communications of Illinois v. Illinois Bell Telephone*, Cause No. 03-2735 and 03-2766, at 13-14 (7th Cir. November 10, 2003).

wireless providers, and the fact that Mr. Sneed's calculation for SBC is below those of the other three *select* companies is unremarkable, not to mention uninteresting. Mr. Sneed's benchmarks for these companies provide nothing more than an arbitrary mark in the sand.

Q. Other than the fundamental disconnect between comparing forward-looking and actual costs, are there any other reasons why Mr. Sneed's analysis should be considered invalid?

A. Yes. Mr. Sneed conducts and proffers several rudimentary comparisons which, by their construction, hardly constitute any sort of apples-to-apples comparison. Mr. Sneed's first analysis, referenced above, compares the investment per subscriber of SBC Illinois with that of AT&T, Sprint PCS, and Comcast.[76] While the SBC Illinois data is (appropriately) provided at the state level, the other points of comparison appear to be calculated from *international, total company* data that has been reported as rounded aggregations of other data,[77] rather than any Illinois-specific investment data for these companies. Not only that, the financial information and customer counts upon which he relies is a mixture of year-end

76. *Id*.

77. *Id*., at footnotes 16-19. The citations provided by Mr. Sneed are to very general total company results in annual financial reports. These total company results likely include world-wide operations of several diversified lines of business, not Illinois specific wireline operations. Also, the data cited are clearly rounded. It should be noted that, under cross-examination in a recent UNE case in Indiana in which the same data was presented, Mr. Sneed acknowledged that he did not have a general understanding of the underlying data, and therefore could not provide insight into the validity of the comparisons. *See*, *Commission Investigation and Generic Proceeding of Rates and Unbundled Network Elements and Collocation for Indiana Bell Telephone Company, Incorporated d/b/a SBC Indiana Pursuant to the Telecommunications Act of 1996 and Related Indiana Statutes*, Indiana URC Cause No. 42393, Oral Testimony of John Sneed, September 23, 2003 ("*Sneed Indiana Transcript*"), at B-98.

2001 and year-end 2002 data.[78] In short, he might as well have been comparing the cost of an 8-ounce cup of coffee at Starbucks with the cost of 8 ounces of fancy French perfume – after all, both are liquids.

Mr. Sneed's next effort is a comparison of CLEC and SBC Illinois proposed TELRIC investment-per-loop costs with the ARMIS embedded costs for SBC Illinois, Verizon Massachusetts, and BellSouth Florida, in an effort to estimate current replacement of the network.[79] Again, this exercise is fruitless because it once again compares historic, embedded data[80] to forward-looking estimates of cost, as proposed by AT&T. The fact that Mr. Sneed is now comparing Illinois forward-looking costs to the embedded costs of *other states* incredibly makes his analysis *even more irrelevant* than that of Dr. Aron.[81]

Mr. Sneed's final "analysis" is equally superfluous. Here he presents a table that shows a simplified example of what the results of SBC-Illinois' operations would be if AT&T's proposed UNE rate was adopted and *applied to every SBC retail line*, which translates into the preposterous supposition that every one of SBC Illinois' lines would be leased by a

78. *Sneed (SBC) Ex. 20.0*, at footnotes 17-19.

79. *Id*., at 9.

80. According to Mr. Sneed, the SBC and BOC data was "adjusted...to consider current labor costs." *Id*., at 8. That single adjustment in and of itself is grossly insufficient to correct for the problems inherent in the use of ARMIS data as a method for estimating the actual costs of providing UNEs, as I discuss at length above.

81. Like Dr. Aron's "actual" embedded costs for SBC Illinois, the embedded costs for Massachusetts and Florida likely include items that have nothing to do with UNEs or POTS services, such as investments in broadband facilities and other advanced services.

CLEC.[82] Mr. Sneed goes on to conclude that, if this scenario came to pass, SBC would be forced to lay off 68% of its employees.[83] This dire picture ignores the numerous other revenue sources that are available to SBC and that are not affected by UNEs that are being provided to CLECs for use in serving mass market customers (e.g., long distance, broad-band, DSL, other advanced services, enterprise services, etc.), and also fails to reflect the fact that if SBC were to provide all of its POTS-like services as UNEs, it would then have become structurally separated into separate "wholesale only" and "retail" entities. Under this scenario, SBC's retailing functions (e.g., customer service, sales, marketing, advertising, billing and collection, etc.) – which are not included in forward-looking wholesale UNE costs – would be transferred to its "retail" entity, along with all of the jobs that currently support these functions within the vertically integrated SBC Illinois. To the extent that this scenario also resulted in a net decrease in SBC Illinois' *retail* market share, the retailing functions associated with those customers who migrated to other carriers – and the associated jobs – would be shifted to those other carriers. There is no reason to believe that the outcome would be a net job loss for the state.

It is also instructive to examine the other side of Mr. Sneed's argument, that being the result that would follow if SBC's UNE rates are set according to embedded costs. Under this scenario, as I discuss above, any CLEC not forced out of the market altogether (of which there could be many) will necessarily have to build its own facilities in order to continue to provide service to retail customers. That outcome – incidentally – would be far worse for

82. *Id*., at 19-20.

83. *Id*., at 19.

SBC Illinois than the loss of a share of retail customers to CLECs that continue to purchase the underlying wholesale services from the ILEC. Unlike most retailing costs – which are largely avoidable if the total quantity of retail customers decreases – most network costs are fixed. If CLECs were to construct their own network facilities and in so doing divert network business away from SBC Illinois, the Company would need to spread its fixed network costs over a smaller base of customers, virtually assuring that the rates charged to those remaining customers would be increased. And to the extent that such CLEC construction would likely be placed disproportionately in the more densely populated parts of the state, it would be SBC Illinois' rural customers that would suffer the most. Mr. Sneed and SBC should be careful what they wish for – they might get it.

REBUTTAL TO MR. WILLIAM AVERA

Mr. William Avera's assertion that company-specific risks, such as competition, increase the cost of capital demanded by creditors is contrary to the commonly accepted Capital Asset Pricing Model (CAPM).

Q. Have you reviewed the rebuttal testimony of Mr. William Avera regarding the cost of capital?[84]

A. Yes, I have reviewed specific portions of Mr. Avera's rebuttal testimony regarding the cost of capital. While AT&T/MCI witness Terry Murray is the primary cost of capital witness, I have been asked to address Mr. Avera's contention that competition in the local telephone service market is the primary reason for the "greater risk that investors now associate with the local exchange market."[85] I submitted a study on behalf of AT&T regarding this very issue in response to the FCC's ongoing *Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers* FCC WC Docket No. 03-173.[86] My analysis, which I have attached hereto as Attachment LLS-9, demonstrates that the primary source of increased overall risk and higher cost of capital confronting the RBOCs is their diversification into riskier *non-ILEC* lines of business, such as wireless, broadband, and various foreign ventures, and *not*

84. Rebuttal Testimony of Mr. William E. Avera on behalf of SBC Illinois, SBC Illinois Exhibit 12.1, January 20, 2004 ("*Avera (SBC) Ex. 12.1*").

85. *Avera (SBC) Ex. 12.1*, at 38.

86. *See* footnote 28, *supra*.

the development of the limited amount of facilities-based competition in the local service market that has arisen to date.

Q. How do you know that wireless and broadband are riskier than the local service industry?

A. In the *Virginia Arbitration Order,*[87] the FCC reasoned that a company's overall beta value "may be thought of as a weighted average of the betas for each line of business in which they operate."[88] Therefore, the RBOCs' betas – which currently hover around 1.00 (BellSouth 0.95, SBC 1.05, and Verizon 1.00)[89] – each represent the composite of the market-specific risks confronting each of the distinct lines of business in which the RBOCs presently operate, i.e., traditional LEC services, long distance, wireless, broadband, and foreign and other miscellaneous activities. Beta values observed for pure wireless and pure broadband providers are significantly greater than 1.00. For example, the four "pure" wireless carriers – AT&T Wireless, NEXTEL, Sprint PCS, and Western Wireless – have an average beta value of 1.64.[90] While most pure broadband providers have gone bankrupt in recent years, their betas prior to bankruptcy (such as XO Communications) were in the range of 1.60 - 2.05 during 2001.[91] If the weighted average betas for each of the

87. *See* footnote 12, *supra.*

88. *Virginia Arbitration Order*, at para. 93.

89. *Value Line Investment Survey*, BellSouth, SBC, and Verizon January 2, 2004.

90. *Value Line Investment Survey*, AT&T Wireless, Nextel, Sprint PCS, Western Wireless, January 2, 2004.

91. *Value Line Investment Survey*, XO Communications, January 5, 2001, April 6, 2001,
(continued...)

conglomerate RBOCs is approximately 1.00, removing those segments of their business confronting beta values well in excess of 1.00 implies that the beta values confronting the BOC ILEC entities must be well below 1.00 – roughly the same as had existed when the RBOCs themselves were "pure" ILECs[92] – in order to reach a weighted average beta of about 1.00 for the parent company as a whole. In Attachment LLS-9, I present a quantitative analysis demonstrating that diversification into non-LEC businesses (and not competition in the local market) is the key driver of the increased RBOC betas.

Q. What evidence does Mr. Avera offer to support his claim that competition in local telephone service is the source of greater risks for investor capital?

A. Mr. Avera's analysis seems to imply that investors demand returns based upon both systematic risks (i.e. macroeconomic factors such as GDP or inflation) and company-specific risks (such as the level of competition or the behavior of rival firms).[93] This notion, however, is not supported by modern portfolio theory. As explained in the Capital Asset Pricing Model (CAPM),[94] only systematic risks (measured in beta values) impact the cost of capital for firms because company-specific risks – such as competition – are diversifiable. In a competitive market, one company's gain is another's loss, so an investor can effectively

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91. (...continued)
July 6, 2001 and October 5, 2001.

92. *See* Attachment LLS-9, at Figure 3.

93. *Avera (SBC) Ex. 12.1*, at 37-39.

94. *See* Attachment LLS-9, at para. 37.

cancel out the effects of such intra-market shifts by acquiring a portfolio consisting of multiple competitors. However, *systematic risks* (which affect all firms in an industry similarly) are a legitimate concern for investors because they are not diversifiable. This systematic risk factor is captured in a company's equity beta values. This notion of beta as solely a measure of systematic risk has been adopted by the FCC in its *Virginia Arbitration Order*.[95]

Mr. Avera does not present any theoretical explanation as to why company-specific risks impact the cost of capital. However, in their comments in the TELRIC NPRM, several of the ILECs and their declarants (including Mr. Avera) cite paragraph 680 of the *Triennial Review Order*, which states that "a TELRIC-based cost of capital should reflect the risks of a competitive market," and interpret this as somehow implying that what the FCC meant was the risk confronting a *UNE-only carrier* operating under conditions of facilities-based competition. On that basis, they have argued that those risks are greater than for the ILEC overall. The notion of a "UNE-only carrier" makes no sense when considered in the overall context of the 1996 Act as well as with respect to the above-cited portions of the *Triennial Review Order*.

In enacting Sections 251 and 252, Congress understood that *incumbent* LECs possessed unique resources that entrants could not be expected to replicate without expending considerable amounts of time and economic resources, and that in many cases such replica-

95. *Virginia Arbitration Order*, at para. 87.

tion would be economically wasteful. The UNE requirement was imposed precisely because ILECs possessed legacy infrastructures that, by virtue of the ILECs' traditional status as regulated public utilities, were deployed ubiquitously throughout each ILEC's operating territory. When provided, UNEs utilize a small portion of those common resources, and benefit specifically from the scale and scope economies of the ILEC network. The "T" in TELRIC refers not to the total quantity of UNEs, but to the total quantity of network elements deployed by the ILEC for its use in providing retail services as well as for providing UNEs. Indeed, several state commissions (including those in Pennsylvania, Florida and California) had considered the concept of creating a "UNE-only" carrier through structural separation of the incumbent LEC's network and retail operations. Under this concept, the ILEC's retail entity would have purchased UNEs from the network entity on exactly the same basis and under exactly the same terms and conditions as any other CLEC. In each such "structural separation" proceeding, the ILEC strenuously opposed any form of structural separation, arguing that, among other things, the physical separation of the network and retail functions would be extremely inefficient and costly. It is, to say the least, highly disingenuous for the ILECs to now posit the fiction of a UNE-only carrier as the construct to be utilized in evaluating the "risks" inherent in providing UNEs to CLECs.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.